Clean Cities Santiago Program

Location: Santiago
Type: Alternative fuel vehicles (AFVs)
Size: 500 taxis, 12 buses, 6 refueling stations
Funding: Total: US$1,587,800
Private: US$210,000
Public: US$1,378,000
Objective: To reduce vehicular emissions through the use of alternative fuels.
Duration: 1995–present
Scale: Urban

Summary

The Clean Cities Santiago Program is a public-private partnership in cooperation with the United States Department of Energy (USDOE) for the deployment of AFVs. Establishing a dialogue between fuel suppliers, equipment manufacturers, and regulators led to the conversion of 500 taxis to natural gas, the deployment of 12 natural gas buses, the construction of 6 natural gas refueling stations, and the potential for building a natural gas refueling station at the Arturo Merino Benitez International Airport.

In-Country Principles That Attracted Nondonor Financing

- Capacity building and informed decision making
- Public participation in, and support of, sustainable development
- Institution building and access to justice and enforcement of laws

A key principle that helped attract private financing was the convening of fuel providers, natural gas equipment manufacturers, fleet operators, policy makers, and legislators to deploy natural gas vehicles in Santiago. Activities such as awareness and educational workshops, skills-oriented training for decision makers and staff, study tours, dissemination of best practices, incorporation of public input, and participation in international forums and workshops helped increase the awareness, knowledge, and skills of sector professionals in commercial business practices.

Also important were legal and regulatory frameworks covering tariffs and the willingness of the public sector to establish subsidies and incentives promoting natural gas vehicles. A comprehensive energy law that meets global norms and standards characterized by basic policies and priorities and a framework for private investment also helped attract financing.

Government mandates, policies, and strategies combined with local private-public partnerships created a demand for vehicles using alternative fuels and infrastructure. Public support for sustainable development was facilitated by educating citizens so that they could help shape the policies, markets, and institutions that affect their lives; and by implementing state-of-the-art systems for collecting, demonstrating, and exchanging information to increase the impact of education, communication, and outreach strategies.

Financing

Total project investment was US$1,587,800. Of this, US$210,000 was privately funded via a METROGAS subsidy for light-duty conversion kits. (METROGAS is the monopoly distributor of natural gas in Santiago.) In addition, several private companies funded portions of training visits. Public-sector contributions included a US$1,250,000 subsidy from the Chilean National Development Corporation (CORFO) for compressed natural gas (CNG) buses, and US$127,800 from the USDOE's Clean Cities International Program.

The Project

Santiago had reached critical levels for carbon monoxide (CO) and particulate matter. In 1995, the Clean Cities International Program began sharing information on reducing emissions through the use of natural-gas-fueled vehicles with the City of Santiago. It helped develop the Clean Cities Santiago Coalition, a group comprised of national and local

governments, natural gas utilities, manufacturers, and fleet managers with the local goal of reducing emissions from mobile sources. The coalition sought to develop and use natural gas-fueled vehicles, which would emit less reactive hydrocarbons, CO, nitrogen oxides (NO_x), and particulate matter than diesel and gasoline vehicles.

The Chilean National Environment Commission for the Region of Santiago (CONAMA RM) took over and now administers the Clean Cities model; to date, 500 taxis have been converted from gasoline to natural gas, 9 diesel buses have been retired and replaced with CNG, and 3 diesel buses have been converted to CNG. In addition, 6 refueling stations now provide natural gas for vehicles.

All sectors reap health benefits associated with switching from diesel or gasoline fuel to cleaner-burning natural gas. Local reservoir water quality has improved due to reduced pollution from the converted vehicles affecting the river running through Santiago (el Rio Mapocho). The new transportation market also benefits the natural gas distribution system in Chile.

Technical Data

Technologies used in the project include CNG buses and conversion kits, and a refueling structure for natural gas.

Performance Data

Although not quantified, the project is helping to decrease CO, NO_x, ozone, particulate matter, and greenhouse gas emissions in the Santiago area.

Roughly 500 drivers/mechanics and several airport officials have been trained on the safety, maintenance, and environmental benefits of natural gas vehicles.

Participants and Roles

CONAMA RM administers the project. METROGAS and CORFO provided subsidies. The USDOE provided technical experts to ensure an effective and safe natural gas vehicle program, conducted public outreach, and organized reverse trade missions. It also provided technical assistance to the Arturo Merino Benitez International Airport on the potential siting of a natural gas refueling station. Blue Energy provided technical assistance, the Gas Technology Institute (GTI) helped with logistics for technical visits, and Science Applications International Corporation (SAIC) coordinated reverse trade missions.

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